

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
500V	0.21Ω@10V	25A

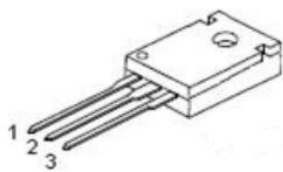
### Feature

- Fast Switching
- Low Gate Charge and R<sub>ds(on)</sub>
- 100% Single Pulse avalanche energy Test

### Applications

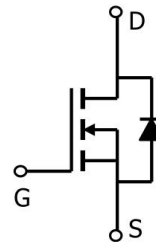
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

### Package

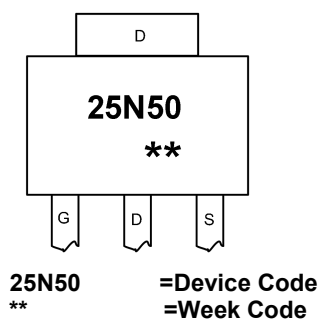


TO-247(1:G 2:D 3:S)

### Circuit diagram



### Marking



**Absolute maximum ratings (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V <sub>DS</sub>	500	V
Gate-Source Voltage	V <sub>GS</sub>	±30	V
Continuous Drain Current <sup>1</sup> (T <sub>C</sub> =25°C)	I <sub>D</sub>	25	A
Pulsed Drain Current <sup>2</sup>	I <sub>DM</sub>	100	A
Single Pulse Avalanche Energy <sup>3</sup>	E <sub>AS</sub>	1215	mJ
Total Power Dissipation(T <sub>C</sub> =25°C)	P <sub>D</sub>	300	W
Thermal Resistance Junction-Case <sup>1</sup>	R <sub>θJC</sub>	0.42	°C/W
Storage Temperature Range	T <sub>STG</sub>	-55 to 150	°C
Operating Junction Temperature Range	T <sub>J</sub>	-55 to 150	°C

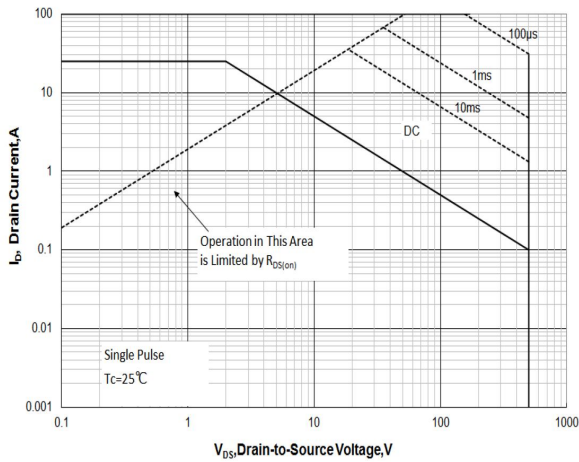
**Electrical characteristics (Ta=25°C, unless otherwise noted)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V , I <sub>D</sub> =250uA	500	---	---	V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =400V , V <sub>GS</sub> =0V , T <sub>J</sub> =25°C	---	---	1	uA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V , V <sub>DS</sub> =0V	---	---	±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	2	3	4	V
Static Drain-Source on-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V , I <sub>D</sub> =12A	---	0.21	0.26	Ω
<b>Dynamic characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V , V <sub>GS</sub> =0V , f=1MHz	---	3468	---	pF
Output Capacitance	C <sub>oss</sub>		---	217	---	
Reverse Transfer Capacitance	C <sub>rss</sub>		---	12	---	
<b>Switching Characteristics</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =400V , V <sub>GS</sub> =10V , I <sub>D</sub> =20A	---	63	---	nC
Gate-Source Charge	Q <sub>gs</sub>		---	16	---	
Gate-Drain Charge	Q <sub>gd</sub>		---	24	---	
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>DD</sub> =250V , V <sub>GS</sub> =10V , R <sub>G</sub> =25Ω, I <sub>D</sub> =12A	---	37	---	ns
Rise Time	T <sub>r</sub>		---	64	---	
Turn-Off Delay Time	T <sub>d(off)</sub>		---	86	---	
Fall Time	T <sub>f</sub>		---	46	---	

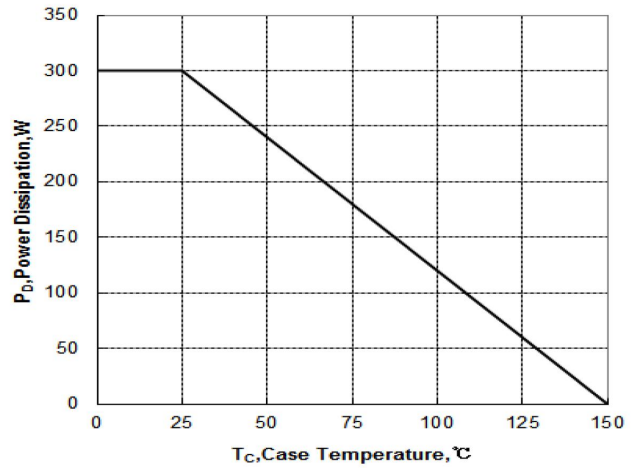
**Note :**

1. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
3. The EAS data shows Max. rating . The test condition is R<sub>G</sub>=30Ω ,L=10mH

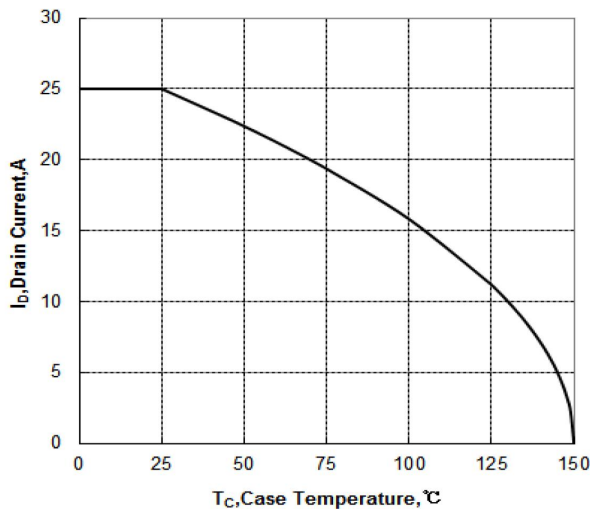
**Typical Characteristics**



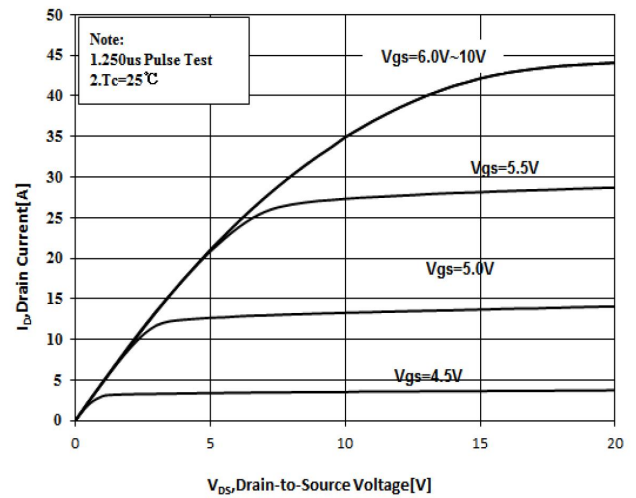
Maximum Forward Bias Safe Operating Area



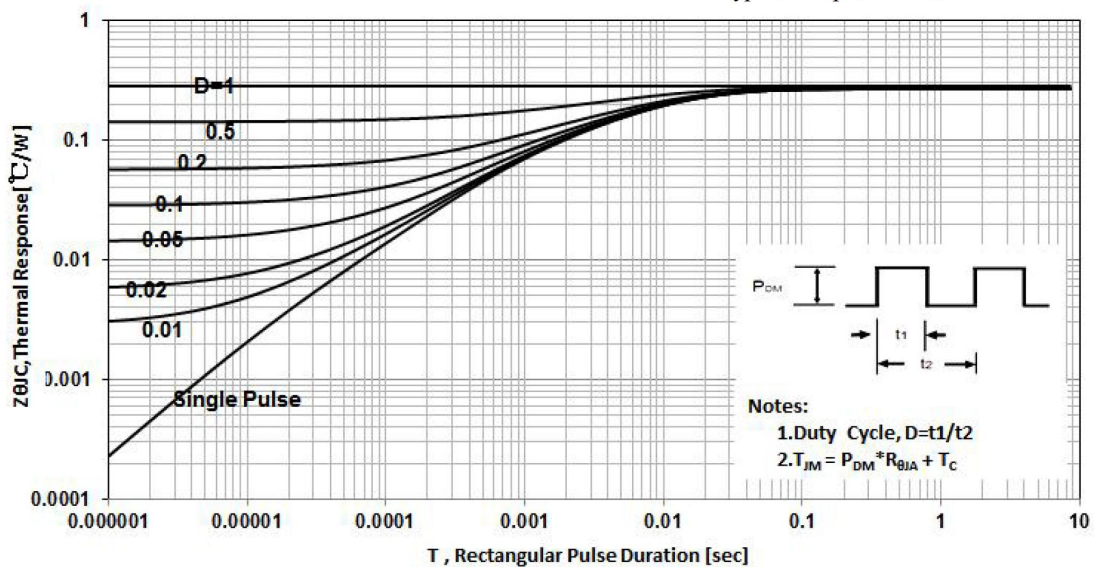
Maximum Power dissipation vs Case Temperature



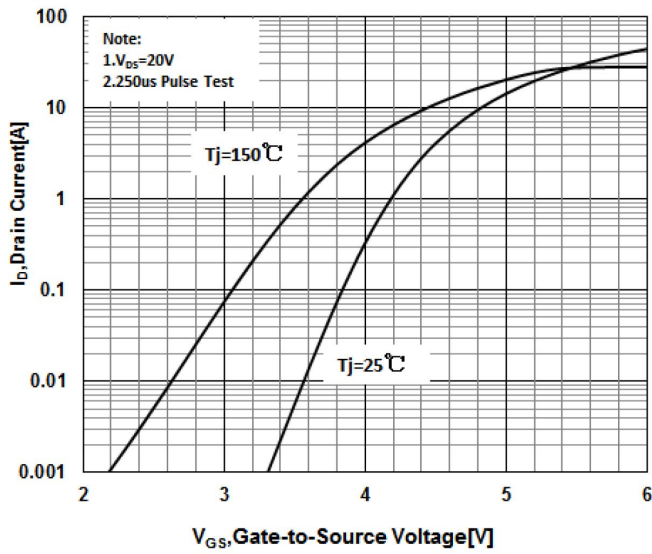
Maximum Continuous Drain Current vs Case Temperature



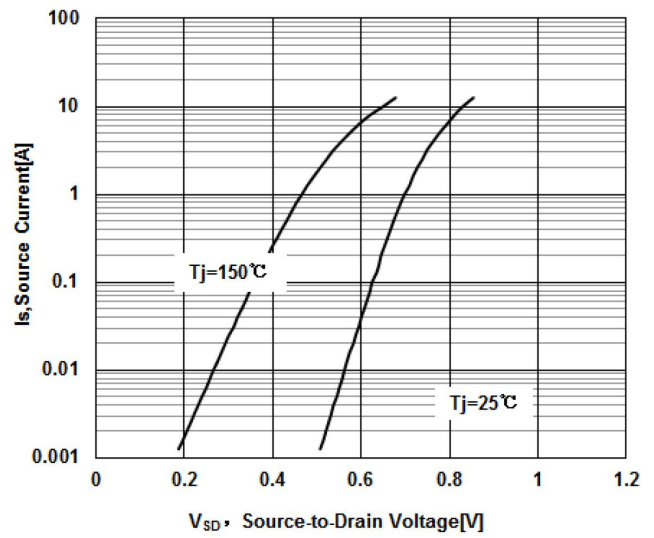
Typical Output Characteristics



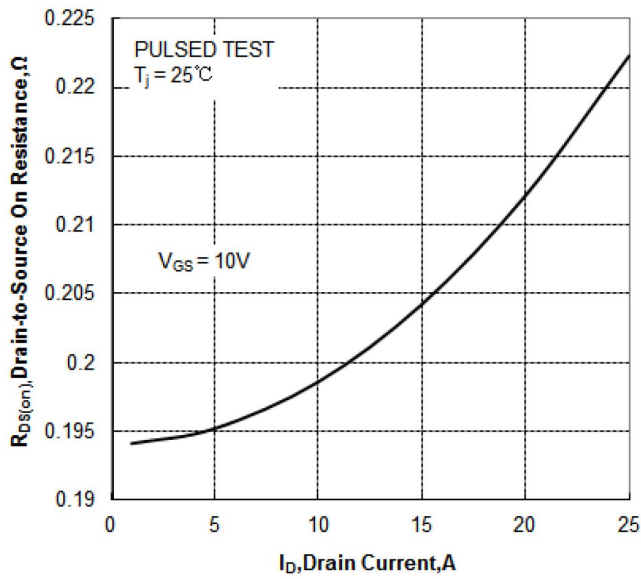
Maximum Effective Thermal Impedance, Junction to Case



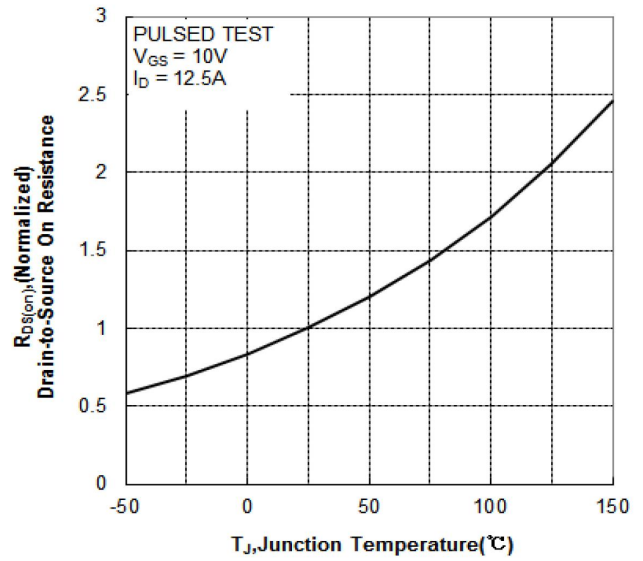
Typical Transfer Characteristics



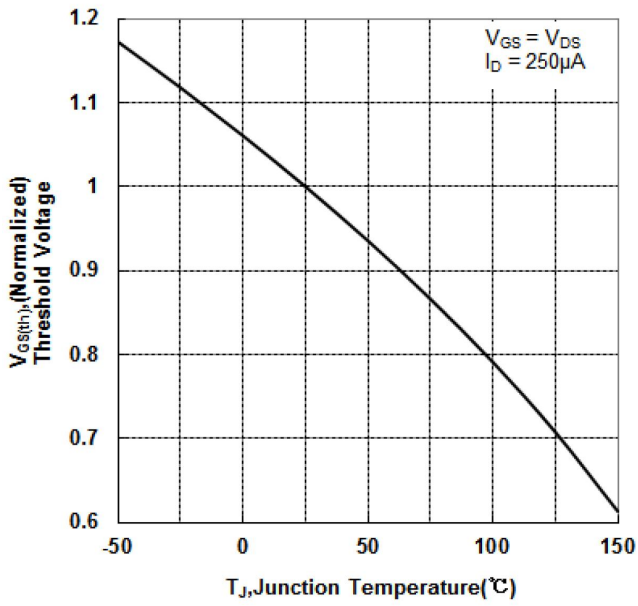
Typical Body Diode Transfer Characteristics



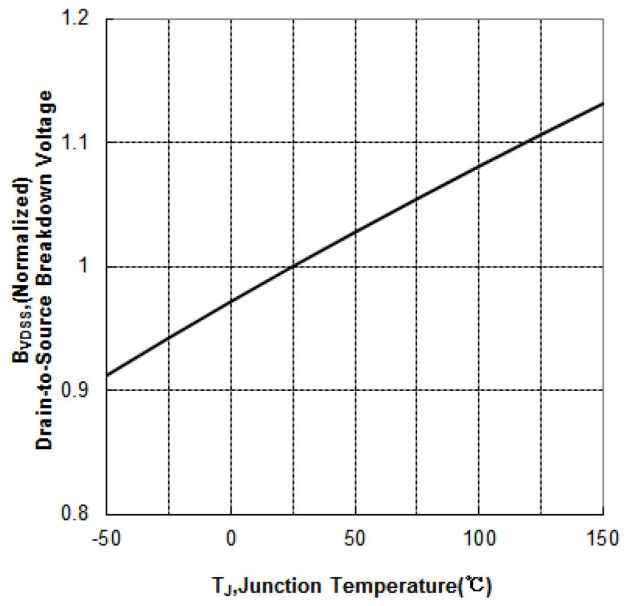
Typical Drain to Source ON Resistance vs Drain Current



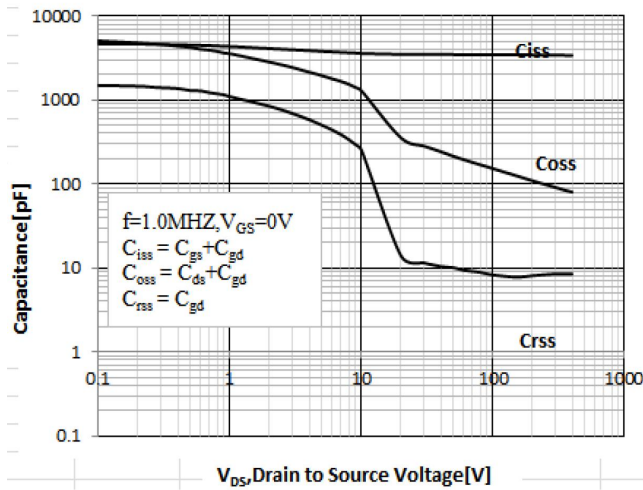
Typical Drian to Source on Resistance vs Junction Temperature



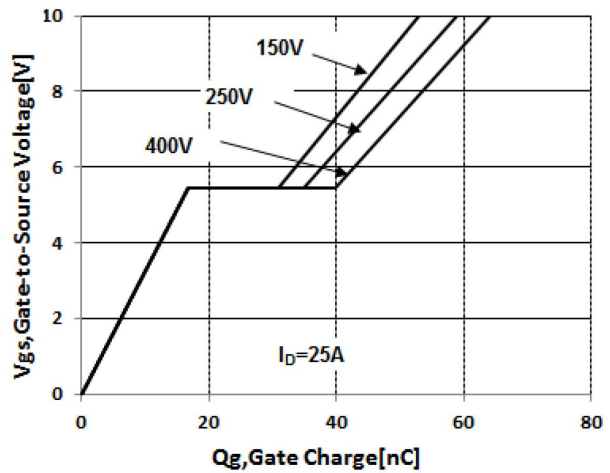
Typical Theshold Voltage vs Junction Temperature



Typical Breakdown Voltage vs Junction Temperature



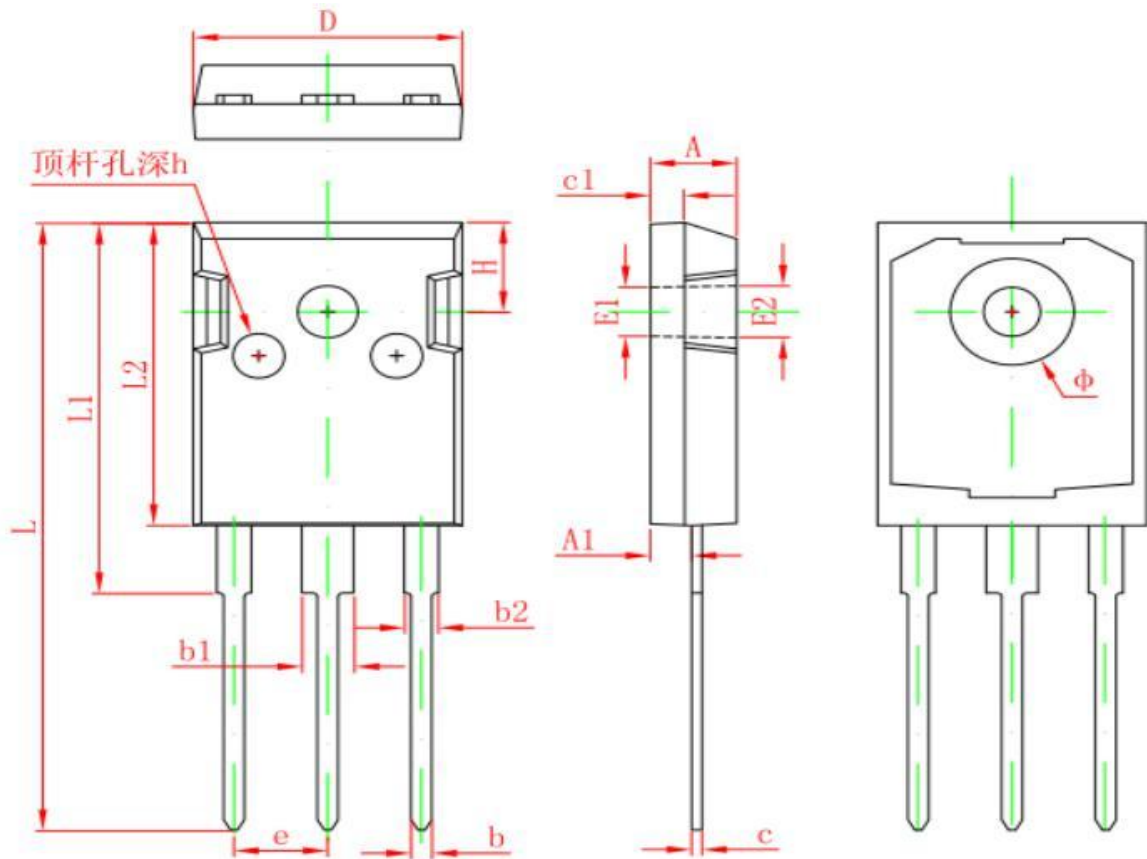
Typical Capacitance vs Drain to Source Voltage



Typical Gate Charge vs Gate to Source Voltage



TO-247 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.850	5.150	0.191	0.200
A1	2.200	2.600	0.087	0.102
b	1.000	1.400	0.039	0.055
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.900	2.100	0.075	0.083
D	15.450	15.750	0.608	0.620
E1	3.500 REF.		0.138 REF.	
E2	3.600 REF.		0.142 REF.	
L	40.900	41.300	1.610	1.626
L1	24.800	25.100	0.976	0.988
L2	20.300	20.600	0.799	0.811
φ	7.100	7.300	0.280	0.287
e	5.450 TYP.		0.215 TYP.	
H	5.980 REF.		0.235 REF.	
h	0.000	0.300	0.000	0.012